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STATISTICAL BULLETIN

METROPOLITAN LIFE INSURANCE COMPANY

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The Death Toll of the Hunting Season

EACH year nearly 7,000,000 persons obtain licenses to hunt with firearms. Licensed to kill wild animals, the inexperienced, unskilled, or careless hunter unfortunately may become the killer of men. The frequent deaths and injuries by accidental shooting among hunters indicate that many either know or care little about the proper handling of a gun.

About 1,000 persons are killed annually in such hunting accidents. Government statistics for the entire country reveal that nearly 3,000 persons are fatally wounded each year in firearm accidents generally. The statistics do not show separately what percentage of these occur in hunting, but the records of several individual States, as well as those of the Industrial policyholders of the Metropolitan Life Insurance Company, indicate that about one third of the total—or 1,000—fatal shooting accidents are incurred by hunters afield. Hundreds more are killed annually by firearms while preparing for the hunt—cleaning guns, at target practice, etc. In the hands of children, hunters' guns carelessly left around the home have far too often figured in tragedies.

An analysis of the records of 133 deaths in typical shooting accidents on the hunt, which occurred among Industrial policyholders of the Metropolitan Life Insurance Company in the period of 1935 to 1937, inclusive, reveals some details of the conditions surrounding these fatalities and suggests precautions which the hunter must observe to avoid such accidents. These fatalities fall mainly into three classes: (*a*) Deaths from wounds accidentally self-inflicted; (*b*) deaths due to accidental shooting by a companion; and (*c*) deaths from accidental shooting by hunters in another party.

Deaths resulting from self-inflicted wounds were the most frequent, accounting for a total of 60, or 45 percent of the fatalities. Sixteen of these deaths resulted when hunters slipped, stumbled, or fell, and their guns were accidentally discharged on hitting the ground or other objects. Risky and unsteady footing while climbing banks, slipping on frozen ground, failure to keep the gun locked in the "safe" position, and carrying the gun in dangerous positions, were some of the contributing factors in these accidents. Climbing over or through a fence

while carrying a loaded gun, or pulling a loaded gun muzzle-first through a fence, caused 13 deaths. Ten were killed as they lifted loaded guns from automobiles, canoes, or other vehicles of transportation. Four deaths took place when guns carelessly carried became entangled in thick brush and discharged. Four men also were killed by the accidental discharge of guns held between their knees as they sat on the ground. Other deaths from self-inflicted wounds resulted when hunters dragged loaded guns up trees, dropped guns to the ground, or when guns with faulty mechanisms discharged.

Accidental shooting by a hunting companion was responsible for 48 of the tragedies, or 36 percent. The accidental discharge of a companion's gun caused 39 fatalities. Excitement, overeagerness, hurry, or carelessness when about to shoot or on suddenly sighting the desired quarry were frequent causes. In some cases the hunter accidentally hit his gun against a tree as he was about to shoot. Others, as in the case of self-inflicted wounds, were using guns with faulty mechanism. Several were killed when a companion's gun dropped to the ground or hit an object as he tripped, stumbled, or fell to the ground. By a curious irony of fate, one man was killed when he grasped the arm of a companion, just as the latter pulled the trigger, to prevent him from shooting at a bird protected by the game laws. Five were killed when they stepped into the line of fire of another marksman. Three fatalities resulted when bullets struck a tree or frozen ground and ricocheted, striking a companion of the marksman.

Nineteen persons, or 14 percent of the total 133 victims, were killed by hunters in parties other than their own. Nine of these 19 were mistaken for deer or smaller game by hunters who were too impatient to take the time to distinguish the object definitely, or who hurriedly fired as soon as they saw a disturbance in thick underbrush. Stray bullets accounted for six deaths. Four fatalities occurred when a hunter coming from behind a building, over the crest of a bank, etc., stepped into the line of fire of another's gun.

Five hunters were killed while resting, by the accidental discharge of guns set against rocks or trees. In some manner these guns fell or were knocked down and discharged. One hunter was shot by a farmer who mistook him for a prowler.

Not until hunters become more careful in the handling of guns and realize the dangers involved can we expect a decline in accidental hunting deaths. Some States have recently made efforts to promote safety among their hunters. Laws have been passed giving State Conservation Departments authority to revoke licenses for long periods or permanently when carelessness is shown. In certain cases a charge of manslaughter has been made mandatory. These are moves in the right direction, and it is to be hoped that they will be extended.

Is the Average Height of American Women Increasing?

THERE is a common impression that the typical American woman has been growing taller. Actually, evidence is somewhat conflicting. Figures from Life insurance material show such a change in a very limited degree at most. A recent study of women accepted for "standard" insurance, between 1922 and 1934, in the Metropolitan Life Insurance Company, shows that the average height (with shoes) was 5 feet 4¼ inches in middle adult life when full growth has been attained. This figure is identical with that of two earlier Life insurance studies based on the material of several companies, the first covering the years 1885-1908 (largely, however, 1900-1908) and the second covering the period 1909-1927.

The recent study of women insured in the Metropolitan further showed that the average height increased, as age advanced, to a maximum in the age group 45 to 49. These results, too, argue against an increase in average height in recent years, because otherwise the averages would decline with age (that is, with receding date of birth), at least after age 20, by which time women have certainly reached their full stature.

A different picture is presented by data from several other sources, which suggest an increase in height. One of the best of these studies was that made by Bowles comparing the heights of college graduates of a generation ago with those of their offspring who attended the same college. His analysis of data of four women's colleges—Vassar, Wellesley, Smith, and Mount Holyoke—showed an increase from 161.6 cm. for mothers to 164.5 cm. for daughters, an increase of slightly less than 3 cm., or 1⅛ inches.

Other data from college sources, based on the average heights of women at entrance, also show significant increases. At Stanford University the average increase over a period of 30 years was 1.2 inches; at Vassar, 1½ inches in 37 years; and at Smith, about ½ inch in 22 years. Similar in character are figures for Barnard women at graduation. The 1935 graduating class averaged slightly over one-half inch taller than the class of 1925.

Unfortunately there are no good general data for this country, based on broad samples of the population over long periods of time, aside from the insurance data already quoted. Reference should be made, however, to the work of Boas, who showed that the native-born descendants of immigrants tended to be taller than their parents and to conform to the body measurements of the natives of the country to which the parents had immigrated.

On the surface the data from insurance and other sources appear to be contradictory. But this contradiction may be only apparent. In the first place, the data showing an increase in average height are based

on selected, homogeneous samples of the population. The insurance material is, on the other hand, a broad and increasingly large sample of the general population, more especially of the urban population, which is a heterogeneous and changing mixture.

The average heights of the different race stocks which make up the population vary materially. They are generally higher for western European stocks than for southern and eastern European stocks. Moreover, there has been a definite change in the proportion of the various race stocks composing our population. Fifty years ago the population contained an overwhelming proportion of persons of western European stock. With the large immigration of the pre-War period, especially from 1880-1914, from southern and eastern Europe, and with the high birth rates which prevailed among these immigrants, persons of southern and eastern European origin have formed an increasingly large proportion of our population. With no other factor operating, the increasing proportion of persons of these shorter stocks in our population would tend to bring about a decrease in the average height. The fact that there has been little, if any, change over a period of years, as shown by the insurance figures, may be an indication that the new generation of southern and eastern European origin are taller than their parents. On this supposition, while the averages for both groups have advanced, the increased proportion of the shorter race stocks in the total population has nullified an increase in the combined averages. Possibly in the insurance data the increased proportion of these shorter groups is particularly accentuated.

The situation described is changing, however. There is some evidence of this already in the insured group. Thus, at the younger ages, the females insured in later years, namely, 1932-1934, had a greater average height than those insured in 1922-1923. This was not true, however, at the older ages. The increase at the younger ages reflects the working of several forces. Most important is that, with the sharp curtailment of immigration during and after the War, the younger women insured in recent years included a much smaller and probably a negligible proportion of foreign-born women than did the group 10 years earlier. Moreover, among the descendants of the later immigration, conditions, such as undernutrition and disease, which inhibit proper physical development have been largely corrected. Another factor which may enter the picture is the increased mingling of racial types in this country due to intermarriage. All considered, it is likely that in the course of a generation the average height for women in the population as a whole will show a substantial increase. The average height which eventually will be attained cannot be predicted, but it is unlikely that it will exceed that already reported for certain favorably situated groups today, such as college women.

Longevity of the American People

THE women in our population live on an average about four years longer than men. This observation is based upon a life table for the general population in the United States for 1935, and it remains true according to a life table just completed for 1936, although for each sex separately there has been a slight recession. According to the figures for 1936, the average length of life for white males is 60.18 years and that for white females 64.36 years, as against corresponding figures of 60.72 years and 64.72 years in 1935. These facts are gathered from life tables for the general population of the United States computed in the Statistical Bureau of the Metropolitan Life Insurance Company, which are shown in abridged form in Table I separately for total persons (white and colored) and for white persons by sex. Data relating to longevity since 1901 will be found in Table II.

The last three columns of Table I show the mortality rates upon which the expectations of life are based. When comparison is made of the mortality of white males with that of white females, it is found that the advantage of the latter is not uniform through all ages of life. At birth, mortality among males is 28 percent in excess of that among females; at age 3 the differential is only 11 percent. At age 50 the excess for males is 48 percent, but with advancing age the death rates of the two sexes tend to become more nearly equal.

On the basis of total persons, regardless of color or sex, it will be seen in Table I that the expectation of life, which starts with 60.81 years at birth, rises to a maximum of 63.13 years at age one. A half century of life is still remaining to those who reach age 16. By the time age 34 is reached, the average person has as many years before him as behind him, and at age 46 the average citizen may still look forward to a quarter century of life. Even for those who have attained the proverbial three score and ten, there still remain, on an average, 9¼ years.

Although the average length of life for the general population in the United States during 1936 (60.81 years) fell by about one half year below the record for longevity established in 1935, when a level of 61.37 years was reached, the slight recession is in no sense a cause for alarm. The general level of longevity for a number of years has been very high, and the figure for 1936 marks a gain of practically one and one quarter years since 1930, the year of the last census. Compared with an average length of life of 49.24 years in 1901, the year for which the first official life table was published, the average length of life in 1936 establishes an improvement of 11.57 years in a period of 35 years. It will be observed from the data in Table II that the improvement in longevity

TABLE I

Expectation of Life and Mortality Rate per 1,000 at Specified Ages for Total Persons (White and Colored) and for White Persons by Sex, United States, 1936

AGE	EXPECTATION OF LIFE, YEARS			MORTALITY RATE PER 1,000		
	TOTAL PERSONS	WHITE MALES	WHITE FEMALES	TOTAL PERSONS	WHITE MALES	WHITE FEMALES
0	60.81	60.18	64.36	52.17	54.66	42.85
1	63.13	62.63	66.22	7.64	7.57	6.45
2	62.61	62.11	65.64	3.88	3.97	3.39
3	61.86	61.35	64.87	2.71	2.70	2.43
4	61.02	60.52	64.02	2.13	2.16	1.93
5	60.15	59.65	63.15	1.79	1.86	1.61
10	55.58	55.11	58.54	1.19	1.31	.98
15	50.95	50.49	53.84	1.86	1.86	1.37
20	46.51	46.02	49.27	2.91	2.68	2.11
25	42.22	41.66	44.82	3.58	3.13	2.69
30	37.97	37.31	40.43	4.07	3.63	3.09
35	33.77	33.02	36.07	5.24	4.87	3.79
40	29.70	28.88	31.77	6.72	6.63	4.70
45	25.73	24.89	27.55	8.82	9.19	6.25
50	21.94	21.12	23.47	12.31	13.17	8.88
55	18.35	17.59	19.57	16.65	18.50	12.49
60	14.96	14.32	15.88	24.31	27.14	19.31
65	11.93	11.40	12.56	37.28	40.94	31.24
70	9.28	8.87	9.67	54.87	59.71	48.37
75	7.00	6.70	7.19	84.88	91.93	78.61
80	5.18	5.00	5.23	126.31	133.75	121.69
85	3.69	3.56	3.68	190.21	196.23	191.04
90	2.60	2.47	2.65	282.69	298.88	283.91

TABLE II

Expectation of Life at Birth Among Total Persons (White and Colored) and Among White Persons by Sex, United States from 1901 to 1936

YEAR	EXPECTATION OF LIFE AT BIRTH, YEARS		
	TOTAL PERSONS	WHITE MALES	WHITE FEMALES
1936*	60.81	60.18	64.36
1935*	61.37	60.72	64.72
1934*	60.79	60.24	64.18
1933*	61.26	60.86	64.40
1932†	61.07	60.69	64.38
1931†	60.26	59.88	63.56
1929–1931	59.57§	59.31‖	62.83‖
1919–1920¶	....	55.33	57.52
1910‡	51.49	50.23	53.62
1901‡	49.24	48.23	51.08

*Total United States.
†United States, excluding Texas.
‡Original Death Registration States.
§This figure relates to 1930 only for the United States, excluding Texas.
¶Aggregate of 27 States; not computed for total persons.
‖United States, excluding Texas and South Dakota.

among white females since the turn of the century has been greater than that among white males. Thus the average length of life for white females in 1936, namely, 64.36 years, shows a gain of 13.28 years as compared with that in 1901, namely, 51.08 years. In the case of males the figure for 1936, namely, 60.18 years, represents a gain of 11.95 years over that for 1901.

As is only to be expected, the figures in Table II give evidence that we can hardly expect, henceforth, as rapid gains in longevity as were experienced in the most remarkable period of the second and third decade of the present century. While in the first decade, 1901 to 1910, the increase in longevity was two years among white males and 2.54 years among white females, in the next decade, from 1910 to 1920, the remarkable gains of 5.10 and 3.90 years, respectively, were recorded. The 10-year period from 1920 to 1930 witnessed an even more marked improvement in longevity, namely, 3.98 years for white males and 5.31 years for white females. The first six years of the current decade have continued the advance, though at a reduced pace, the gains being less than one year for white males and about 1½ years for white females. The fact is that in recent years, 1932 to 1936, the average length of life has been almost stationary, fluctuating between 60 and 61 years for white males and between 64 and 65 for white females.

Unless some altogether extraordinary developments should arise, we cannot reasonably expect the average length of life to go on improving indefinitely. The rate of any further advance must almost inevitably slacken as we approach an optimum obtainable under present health and living conditions. That we have not reached this optimum should be obvious when we consider that all the advantages of modern medical science are not yet as widely available as they can be made with proper organization. No doubt medical knowledge will continue to advance, and application will always lag a little behind discovery. It is the task of workers in public health to make the lag as short as possible and to make medical and public health practice as up to date and as nearly in unison with scientific knowledge as possible.

Regional Variations in Chief Causes of Death

TEN principal diseases and conditions account for three quarters of all deaths in the United States. Foremost of these is heart disease, to which is due nearly one quarter of the entire mortality of the country. So outstanding is the present supremacy of heart disease that its annual death toll is more than double that of cancer, the next most fatal disease. Following cancer are three causes, pneumonia, nephritis, and accidental violence, which rank about equal as regards

the number of deaths. After these come cerebral hemorrhage, and, lagging well behind in seventh place and steadily losing ground, appears tuberculosis, once the undisputed "captain of the men of death." Eighth in importance is "congenital malformations and diseases of early infancy," whose position among the leading causes at all ages has special significance in that its fatalities occur almost entirely among infants in the first month of life. The remaining two diseases of leading rank are diabetes and influenza.

These facts, as they relate to the entire population, are well known. But it is interesting to note further how the sequence of the chief causes of death varies according to locality. For example, the high ranking of cancer in the general population is due entirely to its excessive prevalence in the Northeast, North Central, and Pacific Coast States. In other sections of the country, notably the Rocky Mountain and Southern States, cancer as a cause of death is less important—in most States ranking fifth or lower rather than second. It is true that this differential may be due in part to varying facilities for diagnosis.

Strange to say, it is not in the trying and changeable climate of the Northeastern and North Central States that pneumonia takes highest rank, but in the Southern and Rocky Mountain sections of the country. In the States of Colorado, Utah, Texas, Oklahoma, Arkansas, Alabama, Tennessee, and Kentucky, the toll of pneumonia is exceeded only by that of heart disease, and in New Mexico even this potent cause of death yields first place to pneumonia. Influenza, also, ranks higher as a cause of death in the Southern and Rocky Mountain States than in the Northeastern and North Central sections.

Nephritis prevails chiefly in the South Atlantic States; in such States as Delaware, Maryland, North Carolina, South Carolina, Georgia, Florida, Mississippi, and Louisiana it outranks all but heart disease. In the Rocky Mountain States and in the grain-growing States of the plains, however, nephritis is relatively unimportant, seldom rising above sixth in rank.

One would imagine that the region most liable to accidental violence would be the industrial and densely populated areas of the Northeast. Yet, the States which record the highest death rates from accidental causes are those of the Rocky Mountain region. In fact, so high are the accident rates of such States as Montana, Idaho, Wyoming, and Nevada that they exceed all other causes except heart disease. Moreover, in the whole western part of the United States accidents as a cause of death usually rank higher than third. The chief factor of this high accidental mortality in the Far West is the automobile. Apparently the wide open spaces are an invitation to excessive speed and lead to indifferent driving habits; perhaps not so much among the inhabitants themselves as among the many nonresident transients in these States.

In the West cerebral hemorrhage falls below its rank for the whole country. Particularly is this true regarding the States of the Southwest—Arizona, New Mexico, Texas, and Louisiana—where the condition does not rise above eighth in rank.

There are still three States in which tuberculosis maintains its position in the vanguard of the forces of death. In Arizona it outranks even heart disease, and in New Mexico and Tennessee it yields place only to heart disease and pneumonia as the chief menace to human life. In Arizona and New Mexico the high mortality from tuberculosis undoubtedly is due largely to the fact that the dry and salubrious climate attracts many sufferers with advanced cases from other parts of the country. In Tennessee, however, the situation is not so easily explained.

As might perhaps be expected, diabetes appears among the 10 leading causes of death only in the more prosperous States of the North and on the Pacific Coast. In the economically less-favored States of the South and the younger States of the Far West diabetes is less important.

In five States of the Union, for some reason, a particular tendency to suicide prevails. In Nevada, Washington, and California suicide is so common that it ranks ninth among the chief causes of death; in Connecticut and Colorado it is 10th in importance.

In a few States the proportion of deaths from murder and manslaughter is considerable. Georgia and Alabama list homicide among their 10 leading causes of death. Mississippi and Florida record even higher homicide rates, but owing to the high incidence of malaria in the former and of syphilis in the latter State, homicide in these two States fails to attain ranking among the leading 10 causes.

Despite the remarkable success that preventive medicine has achieved against the intestinal diseases of infancy, it is a deplorable fact that diarrhea and enteritis, under age two, still account for a sufficient number of deaths in nine States of the Union to warrant inclusion among the 10 leading causes of death in those States.

Although the fatal effects of syphilis are understated in the mortality records of every State, it is reported frequently enough in Florida and Louisiana to raise it to a place among the 10 leaders.

Malaria has long been banished from most of the United States, but it still finds a fertile soil in certain of the States of the South. In Mississippi and Arkansas malaria causes sufficient deaths each year to justify its inclusion among the 10 leaders in mortality.

Appendicitis is another disease which is so frequent in certain quarters that it attains a leading position among death's forces. In Idaho and Nevada it is 10th in rank, in Wyoming it is ninth in importance, and in Utah it is eighth.

The reasons for these divergences in the leading causes of death in the

different sections of the country are many, such as variations in the age distribution of the population, differences in the racial composition of the inhabitants, peculiarities of occupation and climate, the availability and quality of medical facilities, and differences in social and economic conditions. However this may be, the observations of these regional differences must be of practical interest to health officers and others interested in the health problems specific of their locality. It is clear, for example, that in the Rocky Mountain States conditions call for different emphasis and procedure in the conservation of human life than either in the older and more staid populations of industrial New England or in the special economic and racial conditions of the South.

Health Record for July 1938

THE lowest death rate ever recorded for any July among the Metropolitan Industrial policyholders, namely, 7.0 per 1,000, was registered in July of this year. This brings up to 15 the number of consecutive monthly death rates, each establishing a new low record, the series having begun in May 1937.

The cumulative death rate for the first seven months of 1938 was 8.0 per 1,000, the lowest ever recorded for the like period of any year. This marks a drop of 9.3 percent from the previous minimum, registered in the January-July period of 1937.

Reports from every available source show that the general population of the country is also experiencing a remarkably favorable mortality record this year. Every State from which the Company has been able to obtain preliminary reports has been registering fewer deaths than during the corresponding period of 1937; and reports from 88 major cities, as consolidated by the Bureau of the Census, show that, up to August 13th, the deaths were fewer by 8.5 percent than in the like period of 1937.

Among the outstanding developments of the year are large reductions in the mortality from influenza, tuberculosis, heart disease, pneumonia, puerperal conditions, accidents (all forms), and automobile fatalities. It is already assured that the death rates for tuberculosis and diseases incidental to pregnancy and childbirth this year will be lower than ever before.

The following table shows the mortality among Industrial policyholders for July 1938, June 1938, and July 1937, together with the death rates for the first seven months of each year.

METROPOLITAN LIFE INSURANCE COMPANY

Death Rate per 100,000 for Principal Causes. Weekly Premium-Paying Business in Industrial Department. All Ages (Annual Basis).*

MONTHS OF JULY 1938, JUNE 1938, AND JULY 1937

CAUSES OF DEATH	ANNUAL RATE PER 100,000 LIVES EXPOSED*				
	July 1938	June 1938	July 1937	Cumulative January-July 1938	Cumulative January-July 1937
TOTAL—ALL CAUSES	704.0	751.7	760.3	799.4	881.2
Typhoid fever	1.2	.8	.9	.8	.7
Measles	.6	1.7	1.2	2.6	1.4
Scarlet fever	.3	.6	1.2	1.5	2.0
Whooping cough	1.6	2.2	4.4	2.1	3.3
Diphtheria	.8	.8	1.3	1.6	1.7
Influenza	2.7	4.0	2.9	8.9	26.4
Tuberculosis (all forms)	46.0	45.4	54.3	48.6	54.7
Tuberculosis of respiratory system	41.0	39.4	48.6	43.4	49.2
Syphilis, locomotor ataxia, and general paralysis of the insane	10.3	9.4	9.2	11.3	11.2
Cancer (all forms)	93.1	97.1	91.5	95.7	93.1
Diabetes mellitus	20.7	25.2	20.4	25.5	26.4
Cerebral hemorrhage; apoplexy	49.8	57.8	56.2	59.6	61.3
Diseases of the heart†	130.8	146.1	135.6	158.0	167.8
Diseases of the coronary arteries	29.4	32.6	27.5	34.0	30.7
Angina pectoris	7.8	6.2	5.2	7.2	8.1
Pneumonia (all forms)	29.9	40.9	31.6	61.0	84.7
Diarrhea and enteritis	8.0	7.4	12.2	6.2	6.5
Appendicitis	10.7	9.6	11.7	10.3	11.1
Chronic nephritis (Bright's disease)	49.5	52.2	50.6	55.2	57.6
Puerperal state—total	5.2	5.5	7.0	6.2	7.0
Suicides	9.2	10.8	7.6	9.2	8.6
Homicides	3.6	4.0	5.0	4.3	4.9
Accidents—total	53.7	46.8	64.9	46.6	52.4
Automobile accidents	17.8	14.2	20.6	16.4	19.3
All other diseases and conditions	139.0	144.7	157.8	143.0	159.6

*The rates for 1938 are subject to slight correction, since they are based on provisional estimates of lives exposed to risk.

†Excludes pericarditis, acute endocarditis, acute myocarditis, coronary artery diseases, and angina pectoris.

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STATISTICAL BULLETIN,

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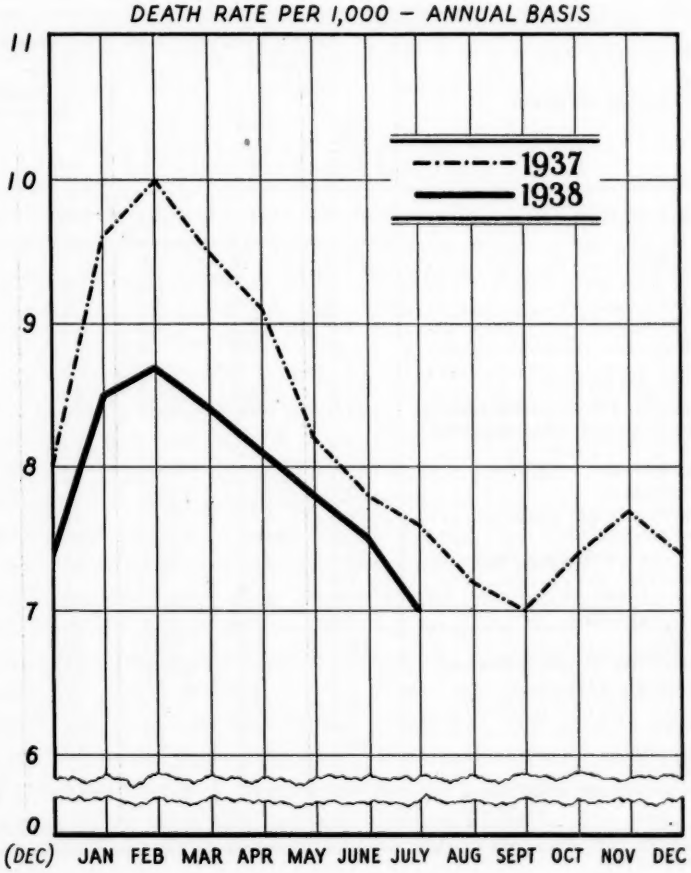
DEATH RATES FROM ALL CAUSES

METROPOLITAN LIFE INSURANCE COMPANY
INDUSTRIAL DEPARTMENT
WEEKLY PREMIUM-PAYING BUSINESS – TOTAL PERSONS



(DEC)	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1937	9.6	10.0	9.5	9.1	8.2	7.8	7.6	7.2	7.0	7.4	7.7	7.4
1938*	8.5	8.7	8.4	8.1	7.8	7.5	7.0					

Rates are provisional

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